

**BURLINGTON  
ENVIRONMENTAL**

RCRA PERMIT  
ADMINISTRATIVE RECORD  
ITEM NUMBER  
TOTAL NUMBER OF PAGES

WAD 2917  
# 8C

RECEIVED  
MAY 27 1993

5/21/1993

RCRA PERMITS SECTION  
CERTIFIED MAIL

FILE COPY

May 21, 1993

Ms. Carrie Sikorski  
U.S. EPA  
1200 Sixth Avenue, M/S HW-106  
Seattle, WA 98101

Ms. Sikorski:

Enclosed are four requests for variances from the Burlington Environmental Inc.  
Pier 91 RFI Workplan.

Substitution of proposed well CP-120.

Installation of well CP-122A as a temporary piezometer.

Discontinued Use of Port of Seattle Monitoring Well W-10.

Revision of schedule presented in RFI Workplan.

If you have any questions or require further information, please contact me at  
(206) 654-8153.

Sincerely,

John Stiller  
Project Coordinator

cc: Galen Tritt - Ecology NWRO  
Bob Farrell - USEPA Consultant

USEPA RCRA  
3012433



REQUEST FOR VARIANCE FROM PIER 91 RFI WORK PLAN  
March 23, 1993

Burlington Environmental Inc. (Burlington) requests a variance from the Burlington Pier 91 RCRA Facility Investigation (RFI) Work Plan (Burlington, 1992). As part of this variance, Burlington would incorporate the Port of Seattle (Port) monitoring well MW-39-3 in Burlington's groundwater monitoring network in lieu of installing and sampling proposed well CP-120. Burlington would collect groundwater and/or product samples from Port well MW-39-3 at the same time the other wells in the network are sampled. The sample collection and analyses would be performed in accordance with the RFI Work Plan. The relevant background information and technical justification for this variance are provided below. Burlington is confident that this variance can be effected without compromising the overall goals of the RFI.

The RFI Work Plan (Burlington, 1992) proposed that monitoring well CP-120 be installed in the area east of the oil/water separator as shown in Figure C-1 of the RFI Work Plan. The rationale for selection of this location was given as the following (paraphrased from Burlington, 1992):

- near the oil/water separator and test borehole TB-2;
- will provide continued monitoring of a location exhibiting high analyte concentrations in a previous investigation; and
- will help define presence/extent of dense nonaqueous-phase liquid (DNAPL) contamination in the shallow aquifer.

Due to the presence of aboveground and underground piping, the proposed location is inaccessible to drilling equipment.

The RFI Work Plan proposed that well CP-120 be installed as a shallow monitoring well with a DNAPL-collection sump, as illustrated schematically in Figure C-3 of the RFI Work Plan. Presumably, any DNAPL that might have been released to the shallow aquifer from the oil/water separator would migrate downslope along the upper surface of a less permeable geologic layer, such as the silty sand layer that directly underlies the shallow aquifer.

A contour map of the upper surface of the silty sand layer was prepared by the USEPA (July 1992) from limited data. The map shows a high along the western side of the property that Burlington leases from the Port of Seattle, with the surface sloping eastward. Subsurface DNAPL is not expected to accumulate on such a slope, but rather is expected to accumulate in any topographic depressions that might exist in the surface of the less permeable layer.

Based on the attached water table map (from Sweet-Edwards/EMCON, 1989), the water table in the area of the separator slopes approximately from northeast to southwest. Therefore any contaminants that are dissolved in the flowing groundwater in the vicinity of the separator are expected to migrate approximately from northeast to southwest.

Three groundwater monitoring wells are located approximately southwest of the oil/water separator. These wells, designated MW-39-1, MW-39-2 and MW-39-3, were completed in the shallow aquifer as part of an underground storage tank (UST) investigation conducted by Harding Lawson Associates (HLA) for the Port (HLA, 1990). The attached figure, labeled "BUILDING W-39 VICINITY MAP", shows the locations of the three Port wells.

Burlington obtained access to, and performed a field inspection of, Port wells MW-39-1, MW-39-2, and MW-39-3 in October 1992. Light nonaqueous-phase liquid (LNAPL) was discovered in two of the wells, MW-39-2 and MW-39-3. No LNAPL was observed in well MW-39-1. Similarly, product-saturated soils were encountered above the water table in boreholes MW-39-2 and MW-39-3 during drilling, but not in borehole MW-39-1 (HLA, 1990). Burlington did not detect DNAPL in any of the Port wells during the October 1992 inspection.

Based on the results of Burlington's inspection of the three Port wells and review of relevant information presented in the UST investigation report (HLA, 1990), Burlington is not currently aware of any design features, installation procedures, material defects, or subsequent damage that would render the wells unsuitable for sampling.

Port well MW-39-3 is located approximately downgradient (hydraulically) of the oil/water separator. Therefore, this well appears to be properly located for the detection of any contaminants that may be dissolved in groundwater migrating horizontally away from the area of the separator.

With respect to the inferred upper surface of the silty sand layer, well MW-39-3 is located topographically upslope of the oil/water separator. Therefore, if DNAPL has been released in the area of the separator, it is not expected to accumulate in this area. As such, a DNAPL-detection design is not required for the well.

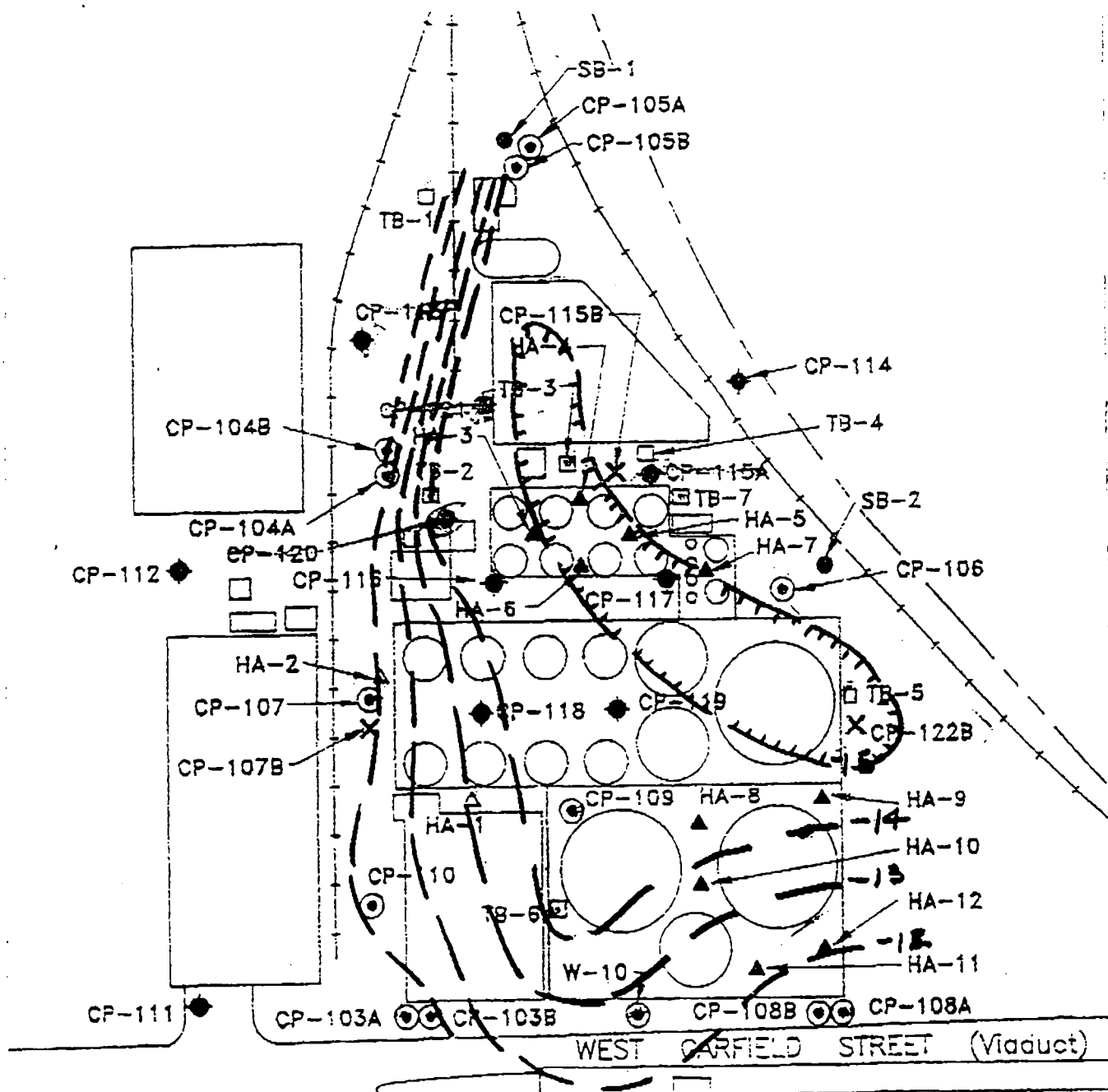
As part of the ongoing RFI, monitoring well CP-115A was installed at a location approximately 120 feet east of the separator, in the area of the inferred topographic low in the upper surface of the silty sand layer. This well contains a DNAPL-collection sump, and therefore provides detection capability for DNAPL that may have migrated from the area of the separator.

## REFERENCES

Burlington Environmental Inc. April 1992. RCRA Facility Investigation Work Plan, Burlington Environmental Inc. Pier 91 Facility, Seattle, Washington. Prepared for Burlington Environmental Inc.

Harding Lawson Associates. June 1990. Underground Storage Tank Investigation in the Vicinity of the City Ice Building, Terminal 91, for the Port of Seattle.

U.S. Environmental Protection Agency. July 9, 1992. Letter from Michael Gearheard, USEPA, to John Stiller, Burlington Environmental Inc.



CONTOURS OF TOP OF  
SILTY SAND LAYER



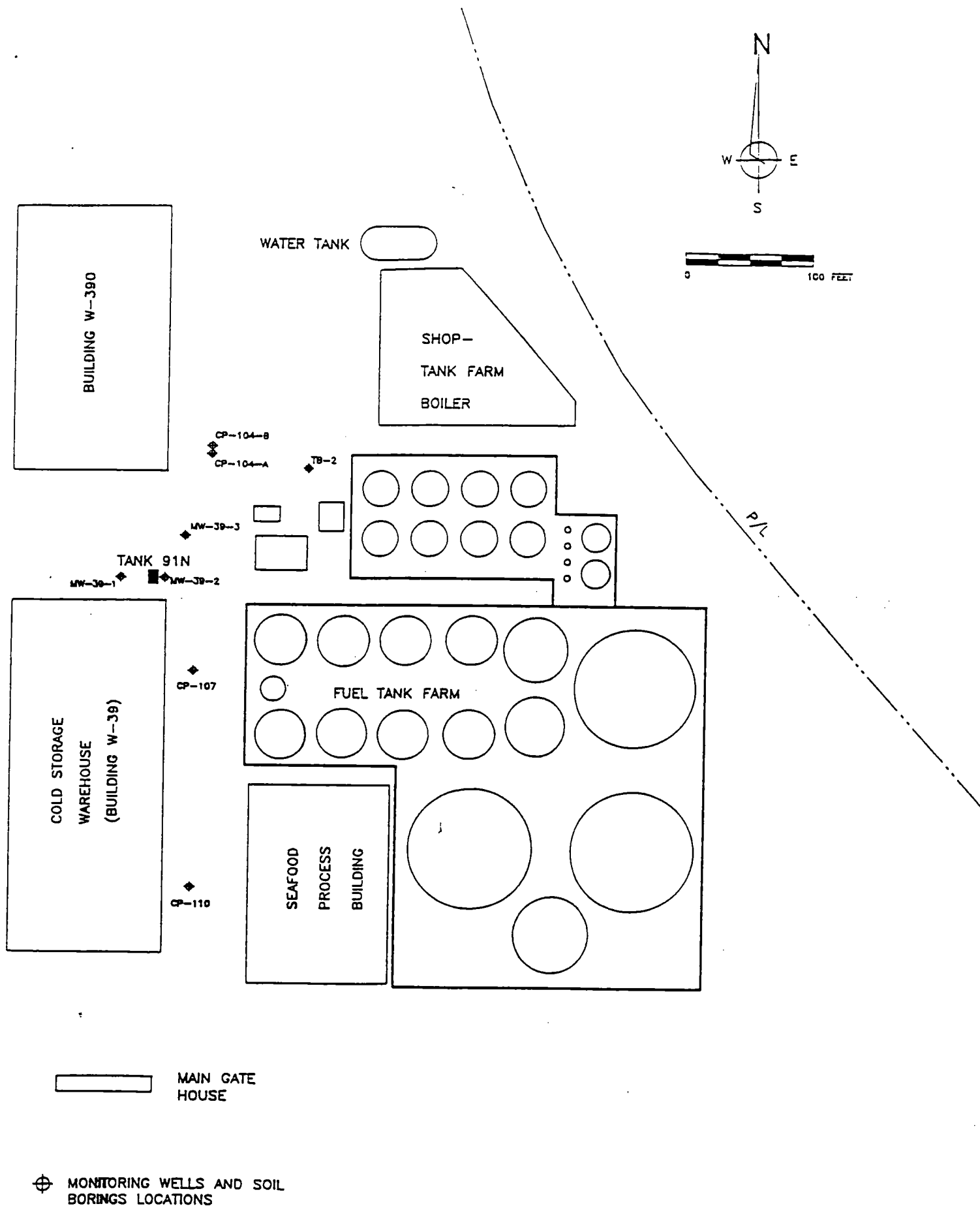


FIGURE 1-3  
BUILDING W-39 VICINITY MAP



REQUEST FOR VARIANCE FROM PIER 91 RFI WORK PLAN  
April 5, 1993

As part of the ongoing RCRA facility investigation (RFI) at the Burlington Environmental Inc. (Burlington) Pier 91 facility, Burlington proposed to install shallow monitoring well CP-122A near the east side of the facility. Details of the proposed well location and construction were included in the RFI Work Plan (Burlington, 1992a) and in Burlington's responses to the U.S. Environmental Protection Agency (USEPA) conditional comments "RCRA Facility Investigation Work Plan - Burlington Environmental Inc. Pier 91 Facility," (Burlington, 1992b). The sole purpose of the well is to provide an observation point for monitoring the water-level response of the shallow aquifer during the proposed pumping test in well CP-122B (see Burlington, 1993).

Unstable conditions were observed at the proposed well location during previous drilling attempts. These conditions include surface settlement and subsurface voids. Installation of a permanent shallow monitoring well in this area is considered impractical because the well is likely to be damaged to the extent that it is no longer capable of yielding representative groundwater samples. This could happen in two ways. First, further soil settlement could occur, causing damage to the well. Second, excavation could be required in the future to correct the unstable conditions, and this might damage the well. In addition, damage to the well could potentially compromise the surface seal.

Based on the above considerations, Burlington proposes to install CP-122A as a temporary piezometer to be used as a shallow-aquifer observation point during the pumping test. The piezometer will be abandoned after the test is completed and the piezometer location has been surveyed. This plan is consistent with the original intent of the well.

The proposed construction methods for well CP-122A are as follows:

- 1) Core a hole through the surface concrete slab, at the planned location of well CP-122A. The hole will be approximately eight inches in diameter.
- 2) Bore a six-inch-diameter hole to three feet below ground surface (bgs) using a hand auger.
- 3) Place a temporary six-inch-diameter polyvinyl chloride (PVC) pipe in the borehole. This pipe will serve as a protective casing to prevent the borehole from caving during well installation.
- 4) Drive a 1.25-inch outside-diameter, Schedule-40 PVC well to approximately ten feet bgs. The well will consist of six feet of 0.01-inch slotted PVC and a stainless steel drive point, with six feet of 1.25-inch outside-diameter PVC riser pipe.

- 5) Remove the protective casing from the borehole while filling the annulus, with bentonite chips, to approximately eight inches bgs (the depth of the bottom of the surface concrete in the area). Hydrate the bentonite chips.
- 6) Following hydration of the bentonite chips, allow the well to rest undisturbed for a minimum of two hours. Then, develop the well using some combination of the following: bailer, peristaltic pump, surge block.
- 7) Install an expanding locking cap in the upper end of the riser pipe. A padlock will be installed on the cap, and will be kept locked at all times except when the well is being used to monitor water levels.
- 8) Place temporary barricades around the well to protect the riser pipe from damage by motor vehicles and pedestrians.

A schematic diagram of the proposed well CP-122A is shown on the attached figure. The proposed well construction methods are consistent with all applicable State of Washington regulations regarding well construction, except for the surface protection requirements. Verbal approval for a waiver of surface protection requirements was granted to Burlington by Rod Thompson of the Washington Department of Ecology on February 24, 1993 (see attached letter).

Following completion of the pumping test, and after the well has been surveyed, it will be abandoned using the following procedures:

- 1) Backfill the casing with cement-bentonite grout to a depth approximately eight inches bgs.
- 2) Cut the riser pipe off at a depth of approximately eight inches bgs.
- 3) Repair the surface concrete slab using concrete Premix.

## REFERENCES

- Burlington Environmental Inc. April 1992a. RCRA Facility Investigation Work Plan, Burlington Environmental Inc. Pier 91 Facility, Seattle, Washington. Prepared for Burlington Environmental Inc.
- Burlington Environmental Inc. April 1992b. Responses to EPA Comments on Burlington Environmental's September 4, 1990 Pier 91 Draft Work Plan.

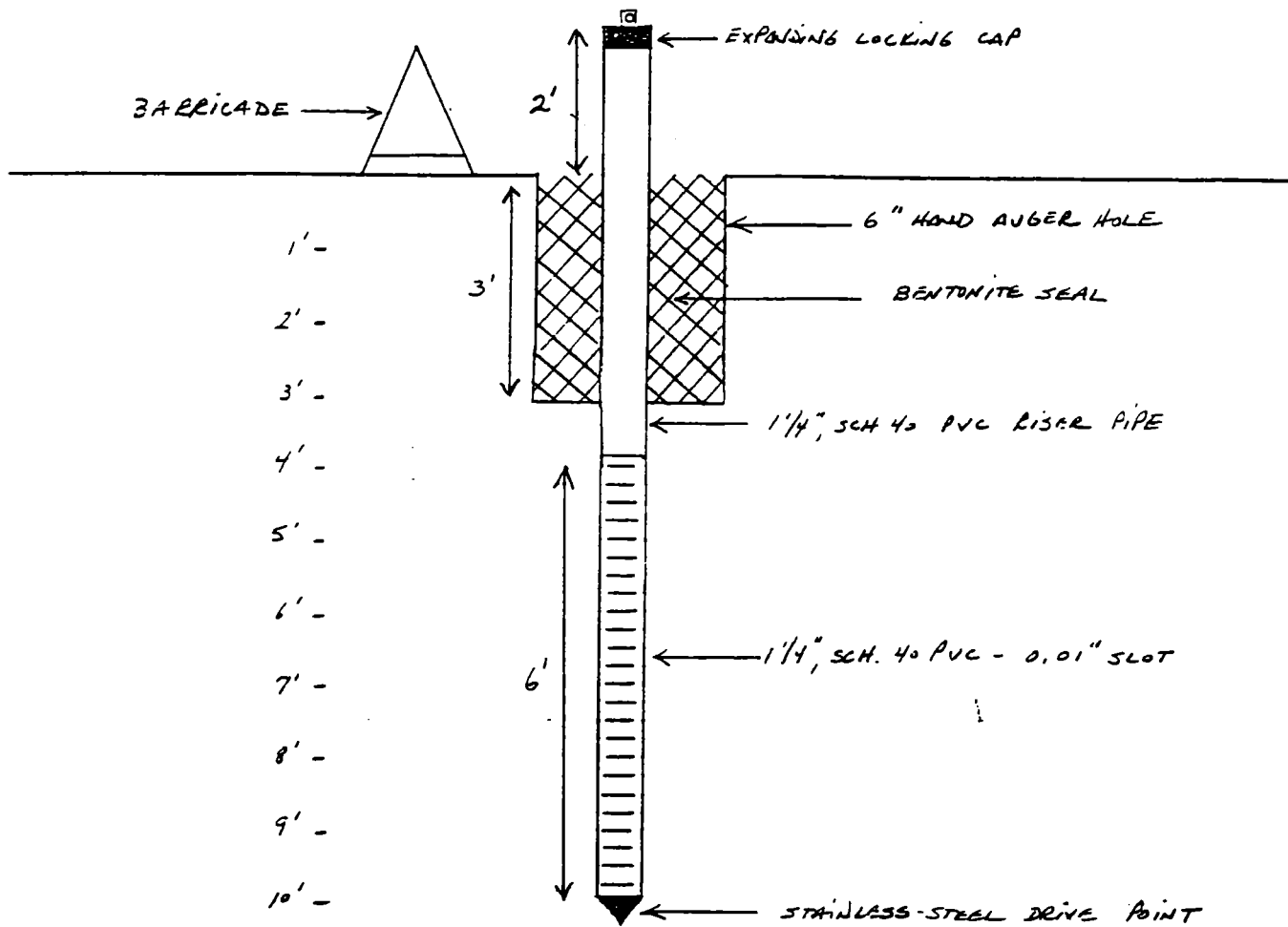
Burlington Environmental Inc. February 1993. Pumping Test Work Plan for RCRA Facility Investigation, Burlington Environmental Inc. Pier 91 Facility, Seattle, Washington.  
Prepared for Burlington Environmental Inc.

U.S. Environmental Protection Agency. July 9, 1992. Letter from Michael Gearheard, USEPA, to John Stiller, Burlington Environmental Inc.



BURLINGTON  
ENVIRONMENTAL

PROJECT = \_\_\_\_\_ PROJECT NAME PIER 91 - CP-122A  
DATE 2/24/93 CLIENT BEE 11V6  
CHKD. BY \_\_\_\_\_ DATE \_\_\_\_\_ SHEET 1 OF 1



PROPOSED CONSTRUCTION DETAILS

CP-122A

PIER 91 FACILITY



**BURLINGTON  
ENVIRONMENTAL**

February 24, 1993  
Project 624873

Mr. Rod Thompson  
Department of Ecology  
Northwest Regional Office  
3190 - 160th Avenue S.E.  
Bellevue, Washington 98008-5452

Dear Mr. Thompson:

**Subject: Waiver of Surface Protection Requirements, Temporary  
Observation Well, Pier 91, Seattle**

This letter is a follow-up of our conversation this morning and confirms your verbal waiver of surface protection measures for the subject well. Burlington Environmental Inc. (Burlington) plans to install a temporary 1 1/4-inch polyvinyl chloride (PVC) observation well in March 1993 at the Pier 91 facility. The well is part of the ongoing RCRA facility investigation at Pier 91. The well will be located in a parking lot within the secured area of the facility, accessible only through a 24-hour guarded gate. Construction of the well will follow the requirements for Resource Protection wells (WAC-173-160), except in regards to surface protective measures. As the well will be abandoned within 14 days of installation, no concrete pad, metal casing, or bumper posts will be installed. Temporary surface protection will be provided by placing barricades around the well, and the well will be inspected at intervals of 48 hours or less. Abandonment procedures will conform to WAC-173-160-560.

After discussing the details of this well with you this morning, you subsequently granted a verbal waiver of surface protection measures for the well per WAC 173-160-510(3). We appreciate your prompt response. If you have any questions, please call me at (206) 223-6544.

Sincerely yours,

**BURLINGTON ENVIRONMENTAL INC.**

William (Chip) Goodhue, R.P.G.  
Hydrogeologist  
Technical Services

WG/rlk/b44:2076b.ltr



## REQUEST FOR VARIANCE FROM PIER 91 RFI WORK PLAN

May 3, 1993

### Request Summary

Burlington Environmental Inc. (Burlington) requests a variance from the Burlington Pier 91 RCRA Facility Investigation (RFI) Work Plan (Burlington, 1992). This variance consists of two parts. For the first part, Burlington requests that monthly water-level measurements no longer be collected from the Port of Seattle (Port) monitoring well W-10. For the second part, Burlington requests that Port well W-10 be excluded from the Burlington Pier 91 RFI groundwater sampling effort until the well's surface seal is repaired.

The background and technical justification for these variance requests are presented below. Burlington is confident that these changes can be made without compromising the overall goals of the RFI.

### Background

The RFI Work Plan (Burlington, 1992) proposed that water levels in Burlington monitoring wells, and in Port well W-10, be measured and recorded monthly. Water levels in Burlington wells are to be measured using an electronic water-level indicator; water levels in the Port well are to be measured using the dedicated air bubbler installed in the well.

The RFI Work Plan also proposed that Port well W-10 be included among those wells to be utilized for groundwater sampling. Groundwater sampling is to be conducted once following well installation and quarterly thereafter for one year.

The following observations were made during the period of March 4-8, 1993:

- Port well W-10 is located adjacent to an asphalt-paved roadway that carries frequent truck and/or forklift traffic.
- The sloping concrete apron surrounding the above-ground well protector (metal casing) for Port well W-10 is fractured, and some concrete fragments have been completely detached from the protector and the ground surface.
- The protective metal casing is loose, and a visible gap exists between the protector and the remaining concrete apron.

- Although the concrete retaining wall located north of the well forms an effective barrier to traffic along one side, the protective casing is not surrounded by bumper posts or other permanent immobile barriers that would protect it from vehicular collisions.

#### Technical Justification

The rationale for excluding Port well W-10 from the monthly water-level monitoring effort are as follows:

- The dedicated air bubbler in the well is capable of providing water-level measurements that are only accurate to within approximately one inch (0.08 foot), whereas the devices used to measure water levels in the other wells are accurate to within approximately 0.01 foot. Inclusion of these measurements in the water-level data set reduces the overall accuracy of the entire water-level data set. Burlington does not believe this is an appropriate use of data.
- Because of its location, Port well W-10 is not likely to provide much additional information on the spatial distribution of water levels in the shallow aquifer. The well is located approximately midway between existing shallow aquifer monitoring wells CP-103A and CP-108A, near the north shoreline of Lake Jacobs. Physically, Lake Jacobs is an extremely conductive and highly storative body, embedded in the shallow aquifer. As such, its presence tends to equalize the water levels along the southern boundary of the facility, thus reducing the required density of sampling points for water-level inference.
- Other existing monitoring wells (e.g., CP-109, CP-110) in the area provide information on the spatial distribution of water levels in the shallow aquifer.
- The dedicated bubbler is time-consuming to use. At least one-half hour is required to measure the water level with the bubbler; in comparison, a water level can be measured in 1-2 minutes using an electronic water-level indicator.
- Each time the water level is to be measured in Port well W-10, special arrangements must be made with Port personnel and/or their consultants, to provide the necessary accessory pneumatic equipment for the bubbler, and to provide access to the well. These arrangements could be streamlined somewhat if the water levels could be measured on the same day of the month every month, and if both Burlington's personnel and the Port consultant's personnel were available on this day every month, but this is not possible.

- If Port well W-10 has sustained vehicle collisions, as observations suggest, then it is possible that these collisions have resulted in a loss of vertical control of the measuring point. As such, water-level measurements from this well may not provide reliable information on groundwater elevation at this location.
- The casing of well W-10 is closed. The only access to the inside of the well casing is through two small ports - an air port and a pump discharge port. These ports, each approximately 0.25 inch in diameter, are not large enough to accommodate water-level detection instruments or groundwater sampling instruments. Because no device can be inserted into Port well W-10 during water-level measurement, it is impossible to conduct visual and/or olfactory examinations of the water (e.g., to observe floating product, suspended material, color, odors, etc.).

The rationale for excluding Port well W-10 from the groundwater sampling until the well is repaired is that the well's surface seal clearly shows signs of possible damage. Thus, any samples collected from the well are not likely to be representative of groundwater conditions in this area.

#### REFERENCE

Burlington Environmental Inc. April 1992. RCRA Facility Investigation Work Plan, Burlington Environmental Inc. Pier 91 Facility, Seattle, Washington. Prepared by Burlington Environmental Inc.

## REQUEST FOR VARIANCE FROM PIER 91 RFI WORK PLAN

May 17, 1993

Burlington Environmental Inc. (Burlington) requests a variance from the Burlington Pier 91 RCRA Facility Investigation (RFI) Work Plan (Burlington, April 1992), to revise the project schedule. The relevant background information and justification for the requested schedule revision are presented below, as is the (proposed) revised RFI schedule.

Burlington has made a conscientious effort to satisfy the conditions of the Pier 91 RFI Work Plan, to keep the project on schedule, and to communicate with the U.S. Environmental Protection Agency (USEPA) on major project developments. In spite of these efforts, conditions have arisen which were outside of Burlington's direct control. These conditions, which have been documented and reported to the USEPA (e.g., in meetings, telephone conversations, bimonthly RFI progress reports, and work plan variance requests), have led to unavoidable delays in the completion of certain field activities.

### Background

Figure E-1 of the approved Pier 91 RFI Work Plan (Burlington, April 1992) diagrams the RFI schedule. A copy of this schedule diagram is attached (Attachment 1). Burlington received notice that the USEPA approved the RFI Work Plan, on approximately July 10, 1992. This date is represented by the vertical line to the left of month 1 in the schedule diagram. The vertical line separating months 1 and 2 in the diagram would represent approximately August 10, 1992, and so on. According to the RFI schedule, the major portion of the field work, as represented by tasks 5 to 11, 13, and 14, was to be completed by approximately mid-November 1992.

### Justification

As justification for the schedule revision, Burlington presents the following capsule summary of the project status, by task. The summary includes a brief description of the conditions that led to delays in work completion. Note that these conditions generally consist of either uncontrolled/unforeseen field conditions or changes in RFI scope.

Task 1, historical site evaluation, is approximately 90 percent complete.

Task 2, site documentation review, is approximately 90 percent complete.

Task 3, utility location/site preparation, as pertains to the work scope outlined in the April 1992 RFI Work Plan, has been completed. However, Burlington has agreed to install an additional shallow-aquifer monitoring point (CP-122A) in response to USEPA conditions for approval of the April 1992 RFI Work Plan.

To date, Burlington has been unable to install monitoring well CP-122A due to soil settlement in the area. Burlington has submitted a variance request proposing to install CP-122A as a temporary piezometer, to be abandoned after the pumping test. If further efforts are expended to install this monitoring point, additional utility searches may be required, due to the numerous underground utilities in the area.

Task 4, beneficial use survey, has been completed.

Task 5, hand-auger boring/soil sampling, has been completed.

Subsurface obstructions were encountered during many of the hand augering attempts. These include buried concrete and buried pipes. This required that the holes be abandoned, the concrete be repaired, and new attempts made. This occurred at hand-auger boreholes HA-4, HA-7, HA-9 and HA-10. In addition, Burlington was required to prepare a request for variance from the RFI Work Plan, to change the location of borehole HA-10. Details on these problems can be found in the September-October 1992 RFI Progress Report submitted to the USEPA.

In addition, although the RFI Work Plan did not specifically require it, Burlington chose to take special precautions to protect open coreholes (in the concrete floors) and hand-auger boreholes in the containment areas from accidental spills that might have occurred. These precautions were prudent, but time consuming. No spills occurred during these operations. However, if spills had occurred, they may have released material directly to the underlying soil and/or groundwater were it not for the additional precautions taken.

Task 6, drilling and installation of regular shallow monitoring wells, as pertains to the work scope outlined in the RFI Work Plan, has been completed except for well surveying. Initially, Burlington planned to complete the surveying during the pumping test, so that the temporary piezometer CP-122A could be surveyed at the same time as the other new wells, prior to its abandonment. Burlington has since decided that this could cause excessive delays to the interpretation of data collected during the first tidal monitoring session and the monthly water-level monitoring, and has decided to conduct the surveying prior to the pumping test.

Task 7, drilling and installation of DNAPL-detection wells, has been completed except for well surveying.

As part of Burlington's response to USEPA conditional approval of the Pier 91 RFI Work Plan, monitoring well CP-115A had to be moved. Approval for the change in location was received by Burlington on September 30, 1992.

Various difficulties were encountered during attempts to install shallow wells CP-111, CP-116, CP-117, CP-118, CP-119, CP-120, and CP-122A. These problems, which were summarized in Burlington's September-October 1992 and January-February 1993 RFI Progress Reports to the USEPA, include the following:

- limited accessibility;
- unstable soils;
- well material failure; and
- equipment failure.

The most serious of these was the problem of ground settlement in the area of proposed well CP-122A. This condition, and the landowner's (Port of Seattle) failure to substantially correct it, resulted in a delay of approximately 13 weeks and twice required the premature abandonment of boreholes.

Burlington has submitted a request for variance from the RFI Work Plan to sample from existing Port of Seattle monitoring well MW-39-3 instead of installing CP-120, and is awaiting a response from the USEPA.

Task 8, drilling and installation of three deep-aquifer monitoring wells, has been completed except for well surveying. Numerous difficulties were encountered during the completion of this task, including the following:

- As part of Burlington's response to USEPA conditional approval of the Pier 91 RFI Work Plan, the locations of monitoring wells CP-107B, CP-115B, and CP-122B had to be changed. Approval for the change in locations was received by Burlington on September 30, 1992.
- A request for variance from the RFI Work Plan had to be submitted to the USEPA, for changing the design of monitoring wells CP-106B and CP-115B.
- A clogged storm drain had to be cleaned out so that standing water could be removed from the area of well CP-106B before drilling could begin.
- Buried concrete was encountered in the shallow portion of borehole CP-106B.
- Combustible gas was encountered during the drilling of borehole CP-106B, thus requiring that special equipment (downhole bladder) be obtained and utilized to prevent gas buildup and ignition.

- Buried obstructions, including pipes, were encountered during the drilling of borehole CP-115B, ultimately requiring drilling (and concrete coring) attempts at four separate locations. See the January-February 1993 RFI Progress Report to the USEPA for details.
- Combustible gas was encountered during the installation of monitoring well CP-115B, thus requiring that additional measures be taken to avoid gas buildup and ignition.
- Stratigraphy of the materials encountered during drilling the deep boreholes (CP-106B, CP-115B, CP-122B) differed from that expected based on previous investigations. This prompted Burlington to collect lithologic samples on a continuous basis in the deep portions of these boreholes, rather than use the limited sampling interval specified in the RFI Work Plan. In addition, Burlington elected to complete the drilling and lithologic sampling in all three of the deep boreholes prior to installation of any deep wells. While this delayed completion of the wells, it allowed their screened intervals to be selected with greater confidence. See the January-February 1993 RFI Progress Report to the USEPA for documentation.
- Monitoring wells CP-106B and CP-122B recovered more slowly than expected following development, each requiring approximately one day for development.

Task 9, soil chemical analysis, is nearly completed. All soil samples have been submitted to the laboratories for chemical analyses. Some soil samples from the three deep wells remain to be analyzed. These results are expected to be received during April 1993.

Task 10, groundwater sampling and analysis, is in progress. The first round of groundwater sampling was performed April 5-14, 1993. The samples are currently being analyzed. The next round of groundwater sampling is tentatively scheduled to begin on June 21, 1993.

Task 11, slug testing of all new monitoring wells and existing well CP-105B, is in progress. The field portion of this work has been completed and data analysis is almost complete.

Task 12, water-level measurement, is on schedule. Water levels are measured monthly.

Task 13, confining unit permeability testing, has been completed.

Task 14, sampling of storm drains, has been completed.

Task 15, QA/QC evaluation of soil/water chemical analysis results, is in progress. This evaluation is performed as lab results become available. The QA/QC evaluation of the soil sample analysis results is expected to be completed in April 1993. The QA/QC evaluation of the groundwater sample results from the first round of groundwater sampling is expected to be completed in May 1993.

Task 16, investigation analysis, is in progress.

Task 17, preparation of a draft response to interim corrective measures (ICM) questionnaire, will commence following QA/QC review and interpretation of the groundwater sampling results.

Task 18, preparation of final response to ICM questionnaire, will follow the completion of task 17.

Task 19, preparation of draft RFI report, is in progress.

Task 20, preparation of bimonthly progress reports for USEPA, is ongoing.

The following are additional tasks that have been added to the RFI subsequent to conditional approval of the April 1992 RFI Work Plan, by USEPA:

Task 21, tidal monitoring, is in progress. Burlington has completed and received USEPA approval of the second draft of the tidal monitoring work plan (Burlington, February 1993). Burlington has completed the field portion of the first of two planned tidal monitoring sessions, and has requested tide-level data from the National Ocean Service. The second tidal monitoring session is tentatively scheduled to occur in August 1993.

Task 22, pumping test, has not yet begun. Burlington has submitted a third draft of the pumping test work plan (Burlington, April 1993) to USEPA, and is awaiting USEPA approval. Burlington has filed a water right application with the Washington Department of Ecology to conduct the test.

#### REVISED SCHEDULE FOR REMAINING WORK

The revised schedule for the remainder of the RFI project is provided as Attachment 2. The following items should be noted with respect to the schedule:

- The revised schedule does not give specific dates for the pumping test because Burlington has not yet received USEPA approval of the pumping test work plan. Furthermore, scheduling for the remaining RFI work tasks is not dependent on completion of the pumping test, nor vice versa.

- The draft RFI report will only discuss groundwater sample results from the initial round of groundwater sampling. It is anticipated that the results from the second round of sampling will not be available soon enough for Burlington to complete a QA/QC review of these data, interpret them, and discuss them in the draft RFI report. Therefore, data from subsequent groundwater sampling events will be evaluated and reported to the USEPA later.

## REFERENCES

Burlington Environmental Inc. April 1992. RCRA Facility Investigation Work Plan, Burlington Environmental Inc. Pier 91 Facility, Seattle, Washington. Prepared for Burlington Environmental Inc.

Burlington Environmental Inc. February 1993. Tidal Monitoring Work Plan for RCRA Facility Investigation, Burlington Environmental Inc. Pier 91 Facility, Seattle, Washington. Prepared for Burlington Environmental Inc.

Burlington Environmental Inc. April 1993. Pumping Test Work Plan for RCRA Facility Investigation, Burlington Environmental Inc. Pier 91 Facility, Seattle, Washington. Prepared for Burlington Environmental Inc.

ATTACHMENT 1  
Burlington Pier 91 RFI Schedule

TASK	MONTHS AFTER APPROVAL OF FINAL RFI WORK PLAN BY EPA									
	1	2	3	4	5	6	7	8	9	10
1. Historical Site Evaluation	_____									
2. Site Documentation Review	_____									
3. Utility Location/Site Preparation	_____									
4. Beneficial Use Survey	_____									
5. Hand Auger Boring/Soil Sampling		_____								
6. Boring/Monitoring Well Installation (7)			_____							
7. Boring/Monitoring Well Installation (4)		_____								
8. Boring/Monitoring Well Installation (3)		_____								
9. Soil Chemical Analysis		_____								
10. Groundwater Sampling/Analysis			_____							
11. Slug Tests				_____						
12. Water-Level Measurement	_____	_____	_____	_____	_____	_____	_____	_____		
13. Confining Unit Permeability Testing				_____						
14. Sample Storm Drains				_____						
15. Evaluate Soil/Water Test Results					_____					
16. Investigation Analysis					_____					
17. Risk Assessment <u>or</u> ICM Questions						_____				
18. Draft Risk Assessment Report* <u>or</u> Response to ICM Questions*							_____			
19. Draft RFI Report*								_____		
20. Progress Reports to EPA		_____		_____		_____		_____		_____

\* - Final reports will be submitted 30 days after receipt by Burlington of EPA's comments.

**Burlington Pier 91 RFI**  
**Revised Schedule 5/17/93**

[illegible]